

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A system for balancing a distribution of allocations for protected software over a communication network according to a license policy, the system comprising:

at least one client computer coupled to the communication network for requesting authorizations to use the protected software; and

a pool of license servers coupled to the communication network, each license server in the pool is programmed for managing a distribution of allocations for at least one client computer coupled to the communication network to use the protected software;

the pool of license servers including a current leader server programmed for updating the distribution of allocations to add at least one additional allocation to a particular license server if that particular license server has an insufficient number of allocations, wherein each license server in the pool can directly communicate with the at least one client computer coupled to the communication network, and wherein each license server in the pool manages the distribution of allocations substantially in the same manner as the other license servers in the pool.

2. (Original) A system as recited in claim 1, each license server further including a borrowing threshold and programmed for determining whether the particular license server did not have a sufficient number of allocations by dividing an allocations-in-use value for that particular license server by a total allocation value for that particular license server and determining if a quotient of the division is greater than the borrowing threshold.

3. (Original) A system as recited in claim 2, the current leader server further programmed for updating the distribution of allocations to add at least one additional allocation to a particular license server if that particular license server did not have a sufficient number of allocations at any time during processing of a request for authorization from a client computer.

4. (Original) A system as recited in claim 2, the current leader server further including memory for storing the distribution of allocations for all license servers in the pool.

5. (Original) A system as recited in claim 2, wherein if the particular license server determines that it does not have a sufficient number of allocations at any time during the processing of a request for authorization received from the client computer, the current leader server is further programmed for:

looking for a source of available allocations by checking a count of available allocations in a free pool, any down license servers, and the leader server; and

decreasing the count of available allocations from the source of available allocations and increasing the count of available allocations for the particular license server if the source of available allocations is found.

6. (Original) A system as recited in claim 5, the current leader server further programmed for communicating the updated distribution of allocations in the pool to all functioning license servers in the pool that are not the current leader server through a distribution criteria sync message.

7. (Original) A system as recited in claim 4, the current leader server further programmed for storing a new distribution of allocations in response to a change distribution criteria message containing the new distribution of allocations communicated to a license server.

8. (Original) A system as recited in claim 7:
the license servers that are not the current leader server further programmed for communicating the change distribution criteria message to the current leader server if the license servers that are not the current leader server should receive a change distribution criteria message; and

the current leader server further programmed for communicating the new distribution of allocations in the pool to all functioning license servers in the pool that are not the leader server through a distribution criteria sync message.

9. (Original) A system as recited in claim 4, the current leader server further programmed for adding allocations to the pool in response to an add allocations message containing a count of allocations to be added to particular protected software communicated to a license server.

10. (Original) A system as recited in claim 9:
the license servers that are not the current leader server further programmed for communicating the add allocations messages to the current leader server if the license servers that are not the current leaders server should receive an add allocations message; and
the current leader server further programmed for communicating an updated distribution of allocations in the pool to all functioning license servers in the pool that are not the leader server through a distribution criteria sync message.

11. (Currently Amended) A system as recited in claim 4, the current leader server further programmed for adding a new license code to the pool in response to an add license code message containing a license code to be ~~added~~ communicated to a license server.

12. (Original) A system as recited in claim 11:
the license servers that are not the current leader server further programmed for communicating the add license code message to the current leader server if the license servers that are not the current leader server should receive an add license code message; and
the current leader server further programmed for communicating an updated distribution table containing the stored license codes and corresponding distribution of allocations in the pool to all functioning license servers in the pool that are not the leader server through a distribution criteria sync message.

13. (Original) A system as recited in claim 4, the current leader server further programmed for updating the distribution of allocations to add at least one additional allocation to a particular license server if that particular license server did not have a sufficient number of allocations at any time during the processing of an update message received from at least one client computer operating in fail-over mode.

14. (Original) A system as recited in claim 13, wherein if the particular license server determines that it does not have a sufficient number of allocations at any time during the processing of an update message received from at least one client computer operating in fail-over mode, the current leader server is further programmed for:

looking for a source of available allocations by checking a count of available allocations in the leader server, a free pool, and any down license servers; and

decreasing the count of available allocations from the source of available allocations and increasing the count of available allocations for the particular license server if the source of available allocations is found.

15. (Original) A system as recited in claim 14, wherein if no source of available allocations is found by checking the count of available allocations in the leader server, the free pool, and any down license servers, the current leader server is further programmed for:

looking for a source of available allocations by checking a count of available allocations in all functioning license servers not designated as the leader server; and

decreasing the count of available allocations from the source of available allocations and increasing the count of available allocations for the particular license server if the source of available allocations is found.

16. (Currently Amended) A method for balancing a distribution of allocations for using protected software by at least one client computer coupled to a communication network, the method comprising the steps of:

coupling a pool of license servers to the communication network;

assigning a distribution of allocations to the pool;

programming each license server to the pool to manage the distribution of allocations including processing requests for authorization to use the protected software from at least one client computer coupled to the communications network;

designating a current leader server from the license servers in the pool and programming the current leader for updating the distribution of allocations to add at least one additional allocation to a particular license server if that particular license server has an insufficient number of allocations in response to a request for authorization received from a client computer,

wherein each license server in the pool can communicate directly with the at least one client computer coupled to the communication network, and

wherein each license server in the pool manages the distribution of allocations substantially in the same manner as the other license servers in the pool.

17. (Previously Presented) A method as recited in claim 16, wherein updating the distribution of allocations includes:

assigning a borrowing threshold to each license server; and

determining whether the particular license server did not have a sufficient number of allocations by dividing an allocations-in-use value for that particular license server by a total allocations value for that particular license server and determining if a quotient of the division is greater than the borrowing threshold.

18. (Previously Presented) A method as recited in claim 16, wherein updating the distribution of allocations includes:

selecting one of the license servers in the pool as a current leader server for storing the distribution of allocations for all license servers in the pool and for managing a re-assignment of allocations to give at least one additional allocation to a particular license server if that particular license server did not have a sufficient number of allocations at any time during processing of a request for authorization received from the client computer.

19. (Previously Presented) A method as recited in claim 18, wherein when it is determined that the particular license server did not have sufficient number of allocations during the processing of a request for authorization received from the client computer, the method further includes:

looking for a source of available authorizations by checking a count of available authorizations in a free pool, any down license servers, and the current leader server; and

decreasing the count of available allocations from the source of available allocations and increasing the count of available allocations for the particular license server if the source of available allocations is found.

20. (Previously Presented) A method as recited in claim 19, further including:

communicating the updated distribution of allocations in the pool to all functioning license servers in the pool that are not the current leader server through a distribution criteria sync message.

21. (Previously Presented) A method as recited in claim 18, further including:
updating the distribution of allocations by communicating a change distribution criteria message containing a new distribution of allocations to at least one license server.

22. (Previously Presented) A method as recited in claim 21, wherein updating the distribution of allocations by communicating a change distribution criteria message further includes:

communicating the change distribution criteria message to the current leader server;

updating the distribution of allocations in the pool in the current leader server;
and

communicating the updated distribution of allocations in the pool to all other functioning license servers in the pool that are not the current leader server through a distribution criteria sync message.

23. (Previously Presented) A method as recited in claim 18, further including:
adding allocations to the pool by communicating an add allocations message containing a count of allocations to be added to particular protected software to at least one license server.

24. (Previously Presented) A method as recited in claim 23, wherein adding allocations to the pool by communicating an add allocations message further includes:

communicating the add allocations message to the current leader server;
updating the distribution of allocations in the pool in the current leader server;
and

communicating the updated distribution of allocations in the pool to all other functioning license servers in the pool that are not the current leader server through a distribution criteria sync message.

25. (Previously Presented) A method as recited in claim 18, further including:
adding a new license code for protected software to the pool by communicating
an add license code message containing a license code to be added to at least one license server.

26. (Previously Presented) A method as recited in claim 25, wherein adding a license
code for protected software to the pool by communicating an add license code message further
includes:

communicating the add license code message to the current leader server;
updating a distribution table containing the stored license codes and
corresponding distribution of allocations in the pool in the current leader server; and
communicating the updated distribution table to all other functioning license
servers in the pool that are not the current leader server through a distribution criteria sync
message.

27. (Previously Presented) A method as recited in claim 18, further including:
updating the distribution of allocations to add at least one additional allocation to
a particular license server if that particular license server did not have a sufficient number of
allocations during the processing of an update message received from at least one client
computer operating in fail-over mode.

28. (Previously Presented) A method as recited in claim 27, wherein when it is
determined that the particular license server did not have a sufficient number of allocations
during the processing of an update message received from at least one client computer operating
in fail-over mode, the method further includes:

looking for a source of available allocations by checking a count of available
allocations in the current leader server, a free pool, and any down license servers; and
decreasing the count of available allocations from the source of available
allocations and increasing the count of available allocations for the particular license server if
the source of available allocations is found.

29. (Previously Presented) A method as recited in claim 28, wherein if no source of available allocations is found by checking the count of available allocations in the current leader server, the free pool, and any down license servers, the method further includes:

looking for a source of available allocations by checking a count of available allocations in all functioning license servers not designated as the current leader server; and

decreasing the count of available allocations from the source of available allocations and increasing the count of available allocations for the particular license server if the source of available allocations is found.

30. (Previously Presented) A system as recited in claim 1, wherein each license server that is programmed for managing a distribution of allocation comprises a license server programmed to receive a request for authorization to use the protected software from at least one client computer and to allocate authorization for each client computer from which a request is received and for which an authorization is available.

31. (Previously Presented) A system as recited in claim 1, wherein each license server is programmed to receive a request for authorization to use the protected software from at least one client computer and, if an insufficient number of allocations are available, for obtaining at least one allocation from the lead server.

32. (Previously Presented) A system as recited in claim 1, wherein:
each license server in the pool is assigned an initial distribution of zero or more available allocations for using the protected software by the at least one client computer; and
the current leader server is programmed to re-distribute one or more available allocations among the license servers in the pool.

33. (Previously Presented) A system as recited in claim 1, wherein:
each license server in the pool is associated with a data storage device for storing a record of the number of allocations presently managed by that license server;
the current leader server is programmed to request a transfer of at least one allocation from a first license server to a second license server in the pool, in the event that the second license server is managing an insufficient number of available allocations; and

Applicant: Redding, et al.
Serial No.: 09/648,720
Filing Date: August 25, 2000
Page 10

each license server in the pool are programmed to update the record of the number of allocations presently managed by the license server, following a transfer of at least one allocation from a first license server to a second license server.